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FEATURED INSIDE:

Technical Series: Critical Points of Tile Design & Installation

Substrate Requirements for GPT Knowing When to say NO

OSHA's Silica Rule: New Data Could Expand Compliance Options

ON THE COVER:

Walsh University large format tile installation by Youngstown Tile & Terrazzo featuring TEC Products

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Lucinda Noel, Executive Director/Editor

A Message from the President

No Matter What the Task, Always Hire the Best Hands in the Business!

I have just started the second year of my two-year term as President of the Tile Contractors' Association of America. I also finally hit middle age. I turned 58 this past November, so if I am doing my math correctly, I am planning to live to the ripe old age of 116. Being a bit over weight and a type 2 diabetic, I can't say how sure I am of my prediction. Over the years the conversations, with our small group of friends, began to drift from what our kids are doing to eventually, almost nothing but health and medical issues. It may start out with, how's the back, is your liver getting better and how often do you need to urinate every night. Well about a year ago after discovering that I would require a double hernia surgery I started to Google everything about the subject. I did my best to educate myself on all the ins and outs of my pending surgery. The most important elements of my search were to find the most qualified surgeon who would deploy the most up to date surgical techniques, and then find the best equipped hospital to handle my procedure. I did not look for the least expensive doctor, the most cost-effective surgical center, or how fast the procedure would be completed.

Many times, when an architect or design professional selects tile finishes for a project, the research and selection process can be exhausting. The selected tiles may travel around the world to then be installed on a given project. Many of the tiles that are specified are new to the industry, require cutting-edge installation techniques, are extremely costly, and very difficult to install. There are a lot of inexperienced companies and individuals who lack the skills necessary to ensure a successful project that will stand the test of time; yet they are more than happy to take your money and take you for a ride. I believe the selection of a qualified installation company, that employs qualified installers, is paramount to the ultimate success of the installation.

Qualified labor refers to employing the most qualified professional to perform the installation rather than basing the decision strictly on cost. My father always told me, "you get what you pay for", and in tile installation the low price typically disappoints at best. As per the following, the *TCNA Handbook for Ceramic, Glass and Stone Tile Installation*, which is the most respected installation publication in the ceramic tile industry, reinforces the admonition to choose qualified contractors and installers!

The TCNA (Tile Council of North America) Handbook includes: INSTALLER AND CONTRACTOR QUALIFICATIONS GUIDE

See https://www.tcnatile.com/images/pdfs/TCNAHBGuidelines_QualifiedContractor.pdf of which a portion thereof is copied below:

…… **every aspect of a tile installation relies on the tile contracting company and its installers**. How good the finished installation looks, how well it performs, and how long it lasts are in their hands. **It is for this reason that the Handbook Committee and the Tile Council**

of North America strongly recommend using installers who have demonstrated their commitment to their craft and taken the time to stay current with the latest materials and methods. Because tile is a permanent finish, the lowest bid should not be the driving factor, but rather who is the most qualified to perform the scope of the work specified.

Various programs administered by associations, nonprofit educational organizations, unions, and private companies serve the tile industry by providing education, hands-on training, and evaluation of the skills and competency of installers and contractors. It is important to distinguish between the many programs available…

As with all programs, the rigor and credibility of the program must also be considered.

The following nonprofit programs are well-established and recognized by the Handbook Committee (listed alphabetically):

- **Advanced Certifications for Tile Installers (ACT)**
- **Ceramic Tile Education Foundation (CTEF) Certified Tile Installer Program**
- **International Masonry Institute (IMI) Contractor College Program**
- **Journeyman Tile Layer Apprenticeship Programs** … Contractors that employ union Journeyman Tile Setters can be found through the union locals that list their signatory contractors, primarily the Bricklayer and Allied Craftworkers (**BAC**)……
- **Marble Institute of America (MIAP Accreditation for Natural Stone Tile Installation Contractors**
- **National Tile Contractors Association (NTCA) Five Star Contractor Program**
- **Tile Contractors' Association of America (TCAA) Trowel of Excellence Program**
- **Other Programs:** The Handbook Committee recognizes …

Sample Language for Including Installer and Contractor Qualifications in Specifications

Where inclusion of installer and contractor qualifications in project specifications is desired, include the qualifications under a quality assurance section and require proof of qualifications under a submittals section. The language below may be used for the purpose of including such requirements....

See entire Installer and Contractor Qualifications Guide @ https://www.tcnatile.com/images/pdfs/

So next time you're involved it the selection of a tile installation company, pick the most qualified to ensure that your tile will be installed properly, per industry standards (TCNA/ANSI), and that you receive the beauty and longevity your selected tile can achieve when installed by the best hands in the business.

Brad Trostrud
Trostrud Mosaic & Tile Co., Inc.
TCAA President 2018-19

The Marlene and Joe Toot Global Learning Center at Walsh University
Tile Installation by Youngstown Tile & Terrazzo - Canfield, OH

TEC® Technology and Partnerships Build State-of-the-Art Learning Center

Walsh University's Marlene and Joe Toot Global Learning Center in North Canton, Ohio was designed to be both a high technology hub and highly interactive environment for students and faculty. With almost 44,000 square feet, the building offers ample state-of-the-art space for its first two interdisciplinary research institutes, digital media labs, computer engineering labs, global video communications, classrooms, offices and meeting spaces. A chapel, bright atrium café and patios are additional attractions at the Learning Center. The two-story building is truly a showcase for the university's cutting-edge approach to learning.

The Learning Center's design incorporates natural light and open space for a modern feel that encourages collaboration and interaction. Windows, curved glass railings and round support columns fill the dramatic atrium that is the building's centerpiece. The designers chose stylish 30" x 30" and 15" x 30" thin gray large format tile for flooring that comprises 11,000 square feet on the first and second levels. An additional 1,000 square feet of tile in the restrooms is covered by sleek 12" x 24" thin panels. ***Youngstown Tile & Terrazzo (YTT)*** is an accomplished contractor member of Tile Contractors' Association of America (TCAA) and was chosen to meet the unique tile installation challenges for the Global Learning Center.

With a tight construction timetable and the many curved columns and curved flooring lines along atrium railings, installation of the Learning Center's tile panels required YTT's expert skills and experience. Distributor Virginia Tile of Cleveland made sure that TEC® flooring installation products were specified to meet the unique challenges of the job. Floor preparation became the first hurdle for the project.

Right from the start of the project, YTT discovered that the new concrete substrate had varying elevations across the expanses. On the first floor, there were frequent dips and swirls up to .5 inches. On the second level, the concrete changed depth by up to 1.5 inches across a six-foot section. In addition, the many columns, curves and door jams added complexity to the floor leveling task. First, YTT primed with **TEC® Multipurpose Primer** to prepare the substrate. YTT likes the multi-functional capabilities of this TEC primer and that it improves the bond strength of TEC levelers to the floor.

Next, they pumped new **TEC® Level Set® 300 Self-Leveling Underlayment** to correct the many variations. Josh Cohol, President of YTT, explained, **"TEC® Level Set® 300** was an ideal choice for this project as it easily flowed around the columns and curves and filled all the imperfections to create a flat surface. Large tile requires an exceptionally flat surface, so the leveler's performance was even more important. With our tight timetable, walkability in just two hours was an advantage." The YTT crew finds Level Set 300 exceptionally easy to apply. Cohol appreciated frequent on-site support from H.B. Fuller Construction Products' Charlie Renner, Technical Sales Manager, and Ron Sheldon, Technical Services Manager. Both Renner and Sheldon noted the exceptional job that YTT had done on the difficult leveling job in preparation for the large format tile.

Large thin tiles present a greater risk for cracks migrating up from the substrate, so YTT applied **TEC® HydraFlex™ Waterproofing Crack Isolation Membrane** as specified. The membrane was rolled on before the crew began troweling on the mortar. **TEC® 3N1 Performance Mortar** was chosen for the open floor spaces in the Learning Center. TEC 3N1 is a lightweight premium mortar with Easy Trowel Technology™ for superior handling and extended open time ¬– ideal for large spaces and large tiles. The atrium's round columns required challenging radius tile cuts and a 17° angled layout on the second floor. The crew used **TEC® AccuColor® Caulk** for movement at the expansion joints. YTT's experienced installers expertly navigated through all the challenges with impressive results. H.B. Fuller's Renner noted that "this difficult tile job looks perfect, which is a big testament to YTT's skill." In the restrooms, the installation of the large floor and wall tiles was accomplished with **TEC® Ultimate Large Tile Mortar**, with non-slip and non-slump properties that made the job much easier. This product was specially formulated for today's large format tile.

To finish the sleek tile appearance, YTT applied **TEC® In-Color™ Advanced Performance Tile Grout**. YTT found that the ready-to-use grout was extremely easy to use. TEC In-Color Grout is crack resistant, stain-proof, chemical resistant and does not require sealing – advantages *just right* for the high-traffic tiled floors of the Learning Center. The grout's like-new appearance will continue to complete the look of the large, open tiled spaces for years to come. The Center is truly a showplace on campus. With visible innovation and comfortable gathering areas throughout, the building helps bring out the best in the students and faculty. The Marlene and Joe Toot Global Learning Center has become exactly the real-world, interactive epi-center that Walsh University carefully designed, and more.

For more information about the products used at Walsh University, visit www.tecspecialty.com.

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For more information about the installer visit www.youngstowntile.com

TECHNICAL CORNER: Critical Points of Tile Design and Installation

The Importance of Sufficient Mortar Coverage in Large Format Tile Installations

a series by Scott Conwell, FAIA, FCSI

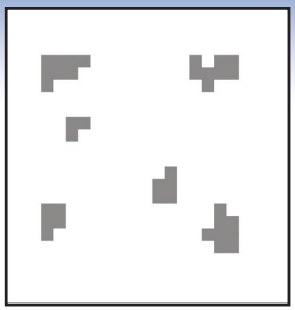
The union tile industry has made great strides in recent years to enlighten design professionals on the importance of skilled labor, qualified contractors, and the role they play in the successful performance of a tile assembly.

The International Masonry Institute (IMI) and TCAA continue to champion this cause in its continuing education program for design professionals and contractors. This year's educational seminar series, visiting nine cities across the U.S. in 2019, features a 60-minute program, "Critical Points of Tile Design and Installation." This seminar touches upon the evaluation criteria for the seven skill areas of the Advanced Certifications for Tile Installers (ACT), examining the design and installation techniques critical to the success of large format tile, membranes, mud floors and walls, shower receptors, gauged porcelain tile, and grouts. This article begins a series that will examine a single critical point within one of the primary skill areas of tile design and installation.

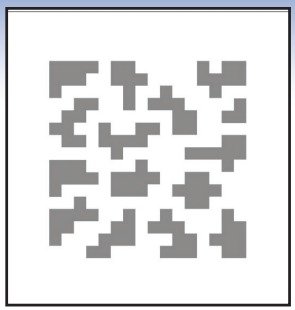
Skill Area: Large format tile; Critical point: Provide sufficient mortar coverage.

There are many factors that contribute to the ability of a tile to permanently bond to the substrate, including substrate preparation, proper selection of setting material, environmental conditions during installation, application of bonding mortar, and embedment of the tile. This article examines standards for mortar coverage, perhaps one of the most important criteria to achieving a good bond.

If a project's architectural specifications reference *ANSI A108 American National Standard Specifications for the Installation of Ceramic Tile*, the tile contractor is obligated meet the minimum mortar coverage requirements specified in the standard. Even if the specification does not refer to ANSI, or if there is no



This figure represents a 12" x 12" tile with 95% coverage (5% voids), as required for wet areas and exterior tile installations. This diagram also shows no voids larger than two square inches, and no voids within 2" of a corner or edge, which is not required of ANSI, but is representative of best industry practice.



This figure represents a 12" x 12" tile with 80% coverage (20% voids) as required for interior non-wet areas. This diagram also shows no voids larger than two square inches, and no voids within 2" of a corner or edge, which is not required of ANSI, but is representative of best industry practice.

specification, it is widely acknowledged that the mortar coverage requirements stated in ANSI represent best industry practice.

The coverage requirements stated in *ANSI A108* apply to glazed wall tile, ceramic mosaic tile, quarry tile, paver tile, and other unmounted vitreous and impervious tile to be installed on walls, ceilings, or floors with modified or unmodified dry-set Portland cement mortar. The standard excludes requirements for glass tile, stone tile, gauged porcelain tile (GPT), and GPT panels/slabs.

For the types of tile covered by the standard, the average mortar contact area shall be a minimum of 80% for interior non-wet areas (i.e. maximum 20% voids in the mortar), and a minimum of 95% for exterior areas and showers (i.e. maximum 5% voids in the mortar). Best practices extend the 95% requirement to all wet areas, not only exteriors and showers. ANSI defines wet areas as "tile surfaces that are either soaked, saturated, or subjected to moisture or liquids (usually water) such as in gang showers, tub enclosures, showers, laundries, saunas, steam rooms, swimming pools, or exterior areas."

As any skilled tile setter knows, it isn't enough to merely spread mortar to the 80% or 95% requirement for contact area; the tiles must be fully and adequately embedded in the mortar to meet coverage requirements. ANSI describes successful tile embedment by keying mortar into the substrate with the flat side of the trowel, then combing the mortar with the notched side of the trowel in a single direction, then finally beating in the tile or pushing it in a direction perpendicular to

the combed ridges (it should be noted that very large tiles like GPT panels employ alternative embedment techniques).

The ANSI Standard includes a provision to check for coverage in freshly laid tile by removing not less than three tiles for visual inspection. If the ridges in the mortar are collapsed, that's an indication of good coverage.

Architects and other design professionals want to ensure that the tile assemblies on their projects achieve sufficient mortar coverage and a good bond. *ANSI A108* provides a thorough definition of what those coverage requirements are and how to achieve them. Since ACT verifies tile setters' knowledge and ability to install to the ANSI standards, the certification can be an effective means of ensuring a successful, lasting installation. Architects who specify qualified installers like TCAA Trowel of Excellence contractors and BAC tile setters who are ACT-certified in Large Format Tile can be confident that the installers have been trained, tested, and certified in providing tile assemblies that meet or exceed best industry practices in mortar coverage and other aspects of tile installation.

With ACT now in MasterSpec and demand continuing to grow, union tile contractors have a significant opportunity to competitively bid projects that require both TCAA Trowel of Excellence contractors and ACT tile setters. Learn more Trowel of Excellence at tcaainc.org/trowel and get more information about ACT, including how your employees can obtain certification at imtef.org/advanced-certifications-tile.

Transparent plexiglass simulates a tile laid in thinset mortar applied with a curving motion of the notched trowel. Note the inability of the ridges in the mortar to collapse due to nonuniformity of the troweling.

Transparent plexiglass simulates a tile laid in thinset mortar applied with a one-directional motion of the notched trowel. Note the ideal embedment of the tile due to the ease of mortar ridge collapse.

To verify proper coverage and embedment, lift a tile and examine the back of the tile for mortar coverage, and examine the substrate for ridge collapse. This photo is an example of ideal coverage and embedment.

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TCAA Labor Report

John Trendell, TCAA Labor Committee Chair
Trendell Consulting LLC

EDUCATED Not in the past tense… …But for the FUTURE!

I recently read a book by Tara Westover entitled Educated: A Memoir. The book describes the trials, tribulations, and successes of the author's quest for knowledge. It was named Amazon's Best Book of 2018. I certainly won't try to critique the book but I was struck by the young author's thirst and drive for learning. Which brings me to recent events occurring in education in our ceramic tile industry.

In January I was in Philadelphia attending the first of nine regional venues for our national 2019 Tile & Stone Seminar Series. These events are sponsored by the International Masonry Institute (IMI) and your TCAA. The event was a great success! Over 50 architects and contractors attended. Add to that exhibitors, sponsors, and union host officials and over 75 people participated. Everyone was engaged. Everyone was more than willing to share and network with others to help each of us gain new knowledge of our industry. I look forward to how the other 8 seminars will impart important new insights to people involved in our work across the country.

The second development that, for me, is even more exciting is the new IMI ceramic tile curriculum for tile setter and finisher apprentices. The content is absolutely phenomenal! The attention to detail and the importance given to the TCNA and ANSI standards has never been so well defined and illustrated.

This curriculum will be taught at the IUBAC regional training centers nationwide as a common standard for all new apprentices. I truly believe that any new tile setter and finisher apprentices completing this program will be part of a new group of craftworkers. A group that will be the most knowledgeable and be the best trained ceramic tile installers in our industry!

As part of this future in continuing education we have an obligation to make sure that all of our craftworkers are being provided with the most up to date information. With this in mind a number of union locals in collaboration with their signatory contractors are including yearly continuing education hours in their collective bargaining agreements. This is a must if we are to keep our contractors and craftworkers competitive and at the forefront of our industry.

So…. all of us have been educated in our respective professions, in the past. But, it is just as important to keep ourselves current and vital to our industry, by continually being educated into the FUTURE! ◆

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Photo features Emerson Wood™ Butter Pecan 3D Cube Mosaic on the floor and Confectionery™ Birthday Cake 6 x 6 on the wall.

Knowing When To Say No Can Prevent A Failed Installation!

Former Apprentice/Student Reaches Out with Questions Regarding Wall Substrate Requirements for Installation of Gauged Porcelain Tile (GPT) Panels

by Gavin Collier, Apprentice Coordinator/Tile -
District Council Training Center, Addison,

One of the most rewarding things about being an instructor is having your former apprentices reach out to you whenever they have an issue or question about an installation they are working on. With the size of tiles growing larger and larger, most of the questions I receive are in regards to substrate specifications and tolerances. This is especially true with the installation of gauged porcelain tile panels/slabs (GPT), which are available in many popular sizes and shapes, all the way up to 5' x 10' (1.5m x 3m) panels.

A few weeks back one of my former apprentices called me with some questions about installing Gauged Porcelain Tile (GPT) on a wall where cement backer board was the substrate. He had concerns with how the backer board was installed, movement in the wall, and the substrate not meeting the flatness specifications. This particular installer had completed his apprenticeship about 4 ½ years ago. During his apprenticeship he was taught about substrate tolerances, so he was aware of the flatness specifications and familiar with the importance of ANSI A108 4.1. This standard states that, "all surfaces that are to receive tile will be free of

any obvious defects or conditions that will prevent a satisfactory tile installation. The installation of the tile will not proceed until satisfactory conditions are provided". In other words, sometimes you just have to say no and reject the substrate that has been provided, which is sometimes easier said than done. Most of our apprentices are not in the position to reject substrates, as that would be the job of the foreman, and many of today's foreman were trained prior to the onset of larger tiles, which require different installation methods and greater flatness specifications. Fortunately, many of the apprentices that we first trained are finally reaching positions where they can make those decisions.

During the apprentice's training, he attended classes on the installation methods for GPT. Although, when the installer attended his training it was still known as TPT (Thin Porcelain Tile), and ANSI A108.19 was not yet in existence. After his apprenticeship was completed he came back to the training center, attended the ACT orientation and then took and passed five of the ACT certifications

(GPT certification was still not available at this time). He was also someone that had knowledge of the TCNA Handbook and the ANSI specifications. His question to me was, "are the flatness specifications and the amount of allowable deflection different for GPT?" After telling him the importance of continuing education, and since he only completed his apprenticeship four years ago, I told him the flatness specifications in ANSI A108.19 are the same as they would be for any large format tile. As for how the backer board was installed and the issue of the deflection or movement, I guided him to the backer boards installation instructions and technical data sheet. After reviewing the backer boards installation instructions, he noticed a couple of things that were done improperly. According to the instructions, "joints in successive courses of backer board should be staggered". This is also detailed in both the TCNA Handbook and in the ANSI specifications. On this project the backer board was not staggered, which caused the four corners of the cement board to align on each successive row. Next came the fasteners: According to the instructions, they should be "spaced a maximum of 8 inches on center." This

specification was definitely not being met, which might have been the cause for some of the issues with the movement. Although, the movement issue may have also been related to how the walls were framed. This can get complicated for our installers as the walls are normally framed and covered with backer board by the time we arrive on the job. However, by checking the backer board data sheet many of the framing details are described and can include the following:

Steel framing: 20-gauge or heavier. According to the TCNA Handbook and the ANSI specifications metal studs should be 20 gauge with a thickness of 0.033 or heavier. Which would eliminate the use of Equivalent Gauge (EQ) studs which are lighter and thinner than the 20-gauge structural studs that should be used in a tile assembly.

Stud spacing: Maximum stud spacing: 16 in.

Deflection: Framing not to exceed L/360 deflection for tile and thin brick (**based on stud properties alone**). This means that the stud itself regardless of cladding or bracing has to achieve L/360. This is another factor that would eliminate the use of EQ studs in most applications. Another issue could be the allowable height of the stud (the highest the studs are allowed to be installed and still meet or exceed the L/360 deflection limit).

It's easy enough to check the stud spacing with the visual inspection. As for the studs themselves, each stud has a stamp on the back describing the stud width, flange width, and metal thickness. There are many factors that can affect the flatness and deflection issues, which can include issues with the framing as described above, improperly installed metal bracing or backing used for supporting plumbing fixtures or grab bars.

With the size of tile increasing, it's not enough to teach our apprentices just the installation methods. They must know the substrate requirements and how to correct substrates that do not meet the required specifications. They must also be made aware that as soon as you install tile on a substrate, that you're accepting the work that was done by others, whether or not the work was done properly. By equipping our apprentices with this knowledge, we're equipping them with the power to say NO if a substrate is not acceptable. ◆

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OSHA's Silica Rule for Construction:

New Data Could Expand Compliance Options

By Susan J Miller, Director, EHS/Engineering Services
Tile Council of North America (TCNA)

The Occupational Safety and Health Administration (OSHA) established an exposure limit for silica with the rule, Occupational Exposure to Respirable Crystalline Silica. This rule includes two standards, one for Construction (29 CFR 1926.1153) and one for General Industry and Maritime (29 CFR 1910.1053).

We are already seeing citations being issued on the construction standard (subject to enforcement since September 23, 2017). However, OSHA also continues to work with impacted industries to improve compliance and has published helpful documents, such as a small business implementation guide, Frequently Asked Questions (FAQs), and an enforcement guide. OSHA has also recently announced its intent to solicit new data and potentially add to the existing standard.

Yes. The standard is being enforced!

AND ongoing compliance support is available!

Understanding Where the Rule Impacts Your Operations

The construction and manufacturing standards for silica established the permissible exposure limit (PEL) for silica at 50 µg/m3 as an 8-hour time-weighted average. An action level (AL) was set at one-half of the PEL with requirements for reducing all worker exposure to below the PEL, and actions specified for exposure above the PEL, and for exposure between the AL and the PEL. These actions include exposure assessments (unless exempt), exposure control methods, respiratory protection, medical surveillance, hazard communications, and keeping silica-related records.

Your first obligation under this standard is to understand where your employees have potential to be exposed to respirable crystalline silica (RCS) and to categorize where each activity fits into the following exposure types [Note: these "types" are used for this discussion and are not official OSHA categories]:

- **Type 1. Below the AL under "any foreseeable conditions."** If an activity fits in this category, it is not covered by the OSHA standard [per §1926.1153(a)]. OSHA's FAQ provides a list of example activities, including small amounts of mortar mixing. Based on work by Tile Council of North America (TCNA), the list has been recently expanded to include the use of block or tile splitters (i.e., the score and snap method).

  Care needs to be taken when conducting activities not covered by the OSHA standard. Employers may want to ensure that exempt operations are clearly

conducted away from other potential silica-exposure activities.

- **Type 2. Activities covered by Table 1 of the standard.** One of the key differences between the silica standard for construction and the standard for manufacturing is the inclusion of Table 1 in the construction standard. Table 1 includes 18 activities commonly conducted on construction sites where OSHA had sufficient information to categorize the exposure potential. If an activity is listed on this table, the standard provides specific work practices and, in some cases, personal protection equipment (PPE) that must be worn if the activity/task is conducted for more than four hours on any given day.

  While the use of Table 1 offers some benefits, two things are critical to remember:

  1. You must fully implement all requirements of Table 1 in order to be covered.
  2. Following Table 1 does NOT mean you are fully in compliance with the rule. It simply exempts you from the need to conduct the exposure assessments (but only if the employee is not also exposed to other sources of RCS). ***All other requirements in the standard still apply.***

- **Type 3. Remaining activities/tasks not included in Table 1 that have the potential to expose employees to RCS.** These activities must be characterized for all employees and then the RCS exposure levels must be evaluated as outlined in the standard.

Once you have clearly established the exposure types, you will need to complete the remaining requirements of the standard, including:

- Conduct exposure assessments for all Type 3 activities.
- Develop and implement a Written Exposure Plan detailing all procedures that will be followed onsite, such as use of engineering controls, work practices, PPEs, and housekeeping practices. This plan also needs to detail how you will ensure your employees are kept from high exposure areas, including those created by other companies on site.
- Develop, as needed, PPE and medical surveillance programs.
- Develop and implement hazard communication and employee training programs.
- Maintain required records, including results of exposure monitoring and a list of employees covered by the medical surveillance program.

What Next? A New Data Call is Coming!

As with any standard, implementation brings more questions. OSHA has developed numerous summaries and guidance documents to assist employers in developing a compliance strategy (see sidebar). In addition, OSHA has been meeting with interested industries and discussing implementation issues. Some of the ongoing compliance questions rise out of Table 1—while Table 1 is a valuable tool, it is incomplete. The difficulty occurs when some on-site activities are included in Table 1 and some are not. In addition, some activities in Table 1 come with a requirement for the use of PPE, although typically only when the task will be conducted for more than four hours.

OSHA took a step towards improving implementation in the 2018 Fall Unified Agenda by announcing their intent to consider changes and additions to Table 1. After the announcement, TCNA staff met with OSHA to discuss this further. TCNA's understanding is that OSHA wants to collect information on at least two different categories of changes to Table 1:

- **New additions to Table 1.** Submittals can include proposed categories and proposed PPE requirements.
- **Enhanced equipment requirements.** TCNA identified this category, which would enable the industry to propose new descriptions or criteria for actions already on Table 1 that would remove PPE requirements under enhanced operation (i.e., to demonstrate that the PPE requirement for operations lasting over four hours is not necessary because of enhanced performance or work practices, such as increased air flow or capture efficiency for a listed activity).

The process identified by OSHA to potentially change Table 1 will be lengthy. OSHA's anticipated approach includes a notice of request for data published in the *Federal Register* with a data submittal/comment period followed by OSHA's evaluation of the information. Once warranted changes are identified, OSHA will propose changes to Table 1 in the Federal Register and have a public comment period followed by a final standard.

Although the process is lengthy, the potential gain is large. Changes to Table 1 could ease the implementation burden of the rule and result in better compliance. ***More immediate benefits are also gained***—the data provided to OSHA for changes to Table 1 could be used as credible data for developing exposure assessments for Type 3 activities.

What should we do as an industry?

1. **Gather available exposure data.** To be most useful, we need to understand the conditions under which the data were gathered. Even if all data are not useful for OSHA submissions because of lack of details on the testing conditions, the anecdotal value of understanding the range of real-world exposure levels is useful.

2. **Determine whether sufficient data exist** for application to OSHA for a new/revised table. Data need to include conditions under which measurements were taken to be most useful.
3. **Identify any operations that would benefit from additional testing.** This could include those for which insufficient data have been gathered or those where changes to PPE requirements are appropriate.
4. **Develop a systematic procedure** for testing under controlled conditions.
5. **Build a testing chamber.** TCNA plans to build a testing chamber to provide controlled and repeatable testing conditions, especially for researching and proposing changes to the requirements for specific enhanced designs. A testing chamber would also benefit points 1 to 4 above since conditions can be controlled and better explained to OSHA.

Time is of the essence! OSHA is not likely to regularly seek industry input so we need to act quickly to ensure data is available to take maximum advantage of this rare opportunity.

Helpful OSHA Documents

OSHA has published numerous documents on their website that can help employers and employees with ongoing compliance. A few key documents are highlighted below:

- **Small Entity Compliance Guide: Construction.** Designed for use by small businesses but it has useful information for everyone, including additional information about Table 1 entries and sample forms.
- **Interim Enforcement for the Respirable Crystalline Silica in Construction Standard.** Shares what the inspector will do when they come on site. Includes guidance to the inspectors for when to take samples, what documents to inspect, and what to do if Table 1 is cited but not being fully implemented at a facility.
- **FAQS for the Construction Industry.** Provides keen insights into the standard by answering in plain language basic to complex questions about implementation.

"Susan Miller is a chemical engineer with over 30 years EHS and compliance experience. She serves as Director of Environment, Health, and Safety Engineering at TCNA. With renewed attention to silica in the ceramic sector, her in-depth expertise with EPA, OSHA, and MSHA rule-making led to the development of The Ceramic Alliance, a newly-formed coalition aimed at assisting with EHS regulatory and compliance issues."

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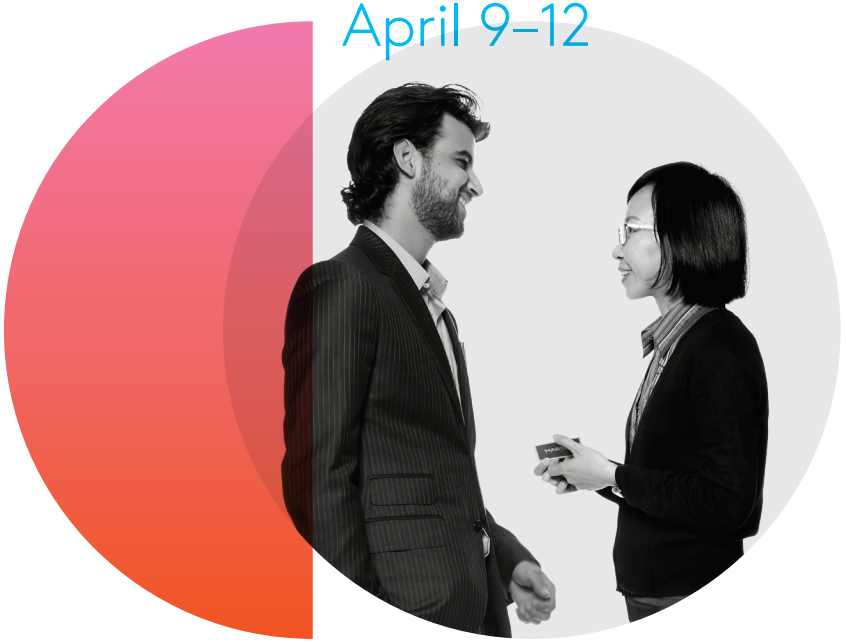

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Coverings Installation & Design Experience Booth 3538

The Installation & Design Experience, located on the show floor, provides an opportunity for Coverings show attendees to experience first-hand, numerous types of tile installations. The Experience will feature state-of-the-art vignettes showcasing cutting-edge tile products and breakthrough technology installation systems, designed by local designers and installed by NTCA Five-Star Contractors.

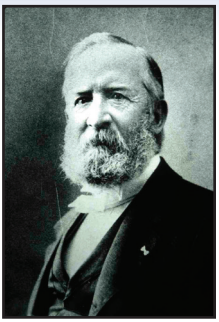
National Tile Contractors Association (NTCA) and the International Masonry Institute (IMI) will be conducting live demonstrations in the lounge area, where trained and certified crews will educate attendees on the proper installation of large-format tile and gauged porcelain tile panels and slabs, as well as the importance of substrate preparation.

CTEF, IMI, IUBAC, NTCA, TCAA and TCNA will be showcasing Advanced Certifications for Tile Installers (ACT) modules, as well as promoting education and certifications for the industry. CTEF will also showcase their Certified Tile Installer (CTI) program. A special highlight this year includes an area created by the Tile Council of North America (TCNA), featuring their highly respected Product Performance Testing Laboratory.

With various installations, tips and techniques, lunches, sessions, happy hours and more, this new and vibrant area of the show floor will be a great hub for learning best practices and networking.

History of Tile

Embossed Tiles Beautify 19th C. Domiciles



John Gardner Low (1835-1907)

Born and raised in Chelsea, Massachusetts, north of Boston, John Gardner Low became a successful landscape painter having studied in Paris as a young man. His interest in ceramics had been kindled while working with James Robertson and his sons at the Chelsea Keramic Art Works. He was 41 when he journeyed to Philadelphia for the Centennial Exposition in 1876. Inspired by the aesthetic splendor of the European ceramic displays, he founded his own tile company the following year, the Low Art Tile Works in Chelsea.

Initially working with his father, Low wisely submitted his earliest tiles to competitive scrutiny in both the U.S. and Europe and consistently came away with bronze, silver, even gold medals for his decorative work. Banking on this success he was able to hire a staff that included Arthur Osborne from England, who as an experienced modeler, created a line of decorative embossed tiles that became instantly popular throughout the country (and remain among the most revered collectibles today).

Produced as they were in England at the time, embossed (or relief) tiles involved a lot of handwork. First, the design was modeled in soft, malleable clay from which, once hardened, a plaster “master” was produced, from which a sand-cast, metal production press mold was made for the size and shape of the intended tile. Using a large manual screw press, white clay “dust” (low moisture content) was pressed into the metal mold under considerable pressure, which allowed for the finest detail to be preserved in the piece. The tiles were later colored with translucent glazes that accentuated the relief once fired.

During the final three decades of the 19th century, most homes and apartments in America maintained fireplaces for heat, often one in every room! Embossed tiles during this period were specifically designed

for the domestic fireplace surrounds and hearths especially in those rooms where a family would entertain, namely the living and dining rooms. To have these decorative tiles adorn one's home was a sign of "good taste."

Courtesy Montana Historical Society.

In 1883 John's father retired and John Farnsworth Low, the founder's son, joined the firm at age 22 and remained with the company until 1902 when operations ceased. Along with the scores of individual decorative embossed tiles, the company featured entire mantel designs, cast iron stove tiles, ornamental wall art, and even ceramic soda fountains!

Here is a special treat: In 2010 historian Richard Pennington published a 240-page book, Low Art Tile: John Gardner Low & The Artists of Boston's Gilded Age, a well-illustrated, in depth look at this man, his family and tiles, his colleagues and associates, as well as a personalized vision of the late 19th century life in the Northeast. It's an inspiring read and it can be yours if you are the tenth (10th) person to email foundation@tileheritage.org with the Subject: **"Low."** (The winner will be announced in the next issue.) Good luck!

Joseph A. Taylor
President, Tile Heritage Foundation
Cesery Award recipient in 2003

www.tileheritage.org

All photos: Tile Heritage Digital Library

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